LINEAR OPTICAL SAMPLING METHODS AND APPARATUS

ABSTRACT

An optical data signal can be sampled by linearly combining the optical data signal with optical sampling pulses, and delivering the combination to first and second balanced detectors. The optical data signal and the optical sampling pulse are configured to have a first phase difference at the first balanced detector and a second phase difference at the second balanced detector. Typically, a difference between the first phase difference and the second phase difference is configured to be about 90 degrees. In-phase and quadrature balanced detector outputs can be combined as a sum of squares to produce a linear sampling signal representative of data signal intensity, and the sample pulses can be configured to temporally step through the optical data signal so that a sampled representation of the optical data signal is obtained.